MONTHLY WEATHER REVIEW.

VOL. XII. WASHINGTON CITY, FEBRUARY, 1884. No. 2.

INTRODUCTION.

This REVIEW contains a general summary of the meteorological conditions which prevailed over the United States during February, 1884, based upon the reports from the regular and voluntary observers of the Signal Service, and from co-operating state weather services. Descriptions of the storms which occurred over the north Atlantic ocean during the month are also given, and their approximate paths shown on chart ii.

The most important features of the month were the destructive flood in the Ohio river and the violent tornadoes of the 19th in the Southern states.

The flood in the Ohio river reached a height greater than was ever before known, causing the inundation of the cities and towns along its banks. Very great destruction of property resulted and many thousands of the population were rendered destitute. At Cincinnati, Ohio, the water rose to a height exceeding the great floods of former years, as follows: February, 1832, six feet and ten inches; December, 1847, seven feet and six inches; February, 1883, four feet and nine inches.

On the afternoon and evening of the 19th violent and destructive tornadoes occurred in the Southern states, east of the Mississippi river, during the passage of the storm described under "areas of low barometer" as number ix., and while it was central in the upper lake region. They were most destructive in Alabama and Georgia, where great loss of life and destruction to property occurred.

The monthly precipitation exceeded the average over nearly the whole country, the excess being greatest from Tennessee northeastward to New England, and in southern California. Deficiencies occurred in the west Gulf states, southern slope, Rio Grande valley, and north Pacific coast region, the departure in the last-named district exceeding 4.00 inches.

The month was from 2° to 12° colder than the average February over the northern districts from the upper lake region and upper Mississippi valley westward to the Pacific coast, the greatest departures occurring in the extreme northwest and Missouri valley. Over the southern districts, lower lake region, Ohio valley, and on the Atlantic coast, the month was warmer than the average by from 1° to 5°, the most marked departure being shown in the south Atlantic states.

In the preparation of this REVIEW the following data, received up to March 20th, 1884, have been used, viz.: the regular tri-daily weather-charts, containing data of simultaneous observations taken at one hundred and twenty-two Signal Service stations and fifteen Canadian stations, as telegraphed to this office; one hundred and sixty monthly journals, and one hundred and forty-six monthly means from the former, and fifteen monthly means from the latter; two hundred and seventy-seven monthly registers from voluntary observers; forty-nine monthly registers from United States Army post surgeons; marine records; international simultaneous observations; marine reports, through the co-operation of the "New York Herald Weather Service;" abstracts of ships' logs, furnished by the publishers of "The New York Maritime Register;" monthly weather reports from the local weather services of Indiana, Iowa, Kansas, Nebraska, Ohio, and Tennessee, and of the Central Pacific railway company; trustworthy newspaper extracts; and special reports.

ATMOSPHERIC PRESSURE.

[*Expressed in inches and hundredths.*]

The distribution of mean atmospheric pressure for February, 1884, determined from the tri-daily telegraphic observations of the Signal Service, is shown by the isobarometric lines on chart iii. From this chart it will be seen that the region of greatest atmospheric pressure for the month comprises parts of Montana, Dakota, and Minnesota, where the monthly barometric means exceeded 30.2—the maximum, 30.24, occurring at Fort Buford, Dakota, and at Forts Assinaboine and Benton, Montana. Westward from the region of greatest pressure the monthly barometric means decrease to 30.0 and below, at stations on the northern and middle Pacific coasts; to the southward, to 30.01 in Arizona; to the eastward, to from 30.01 to 30.05, over an area extending from eastern Illinois to New England; southeastward, to 30.07 in central Arkansas and western Tennessee, and thence increasing over the south Atlantic and eastern Gulf states—a small area in northern Georgia being inclosed by an isobar of 30.15. The least monthly mean pressure, 29.97, is reported from Cape Mendocino, California.

The mean pressure of February, 1884, compared with that of the preceding month, shows a slight increase over the Canadian maritime provinces. In all other districts a decrease has taken place, excepting the northern part of the upper lake region and northern New England where no change occurred. The largest deficiences are shown over the region from the upper Mississippi and lower Ohio valleys southwestward to Texas, where they varied from .15 to .21. On the Pacific coast the deficiences varied from .09 to .12; in the extreme northwest, lower lake region, middle and south Atlantic states, from .01 to .09.

DEPARTURES FROM THE NORMAL VALUES FOR THE MONTH.

In the extreme northwest and at the more northerly stations in the upper lake region, the mean pressure of February, 1884, was above the normal, the departures ranging from .01 to .07. In all other parts of the country, except in New England where it was normal, the mean pressure was below the normal for February. The greatest deficiences occurred on the Pacific coast from southern California to southern Oregon, and from central Ohio valley and Tennessee to the Atlantic coast. In those districts the departures varied from .10 to .13. In southern New England, the lower lake region, Indiana, Illinois, Missouri, and from the south Atlantic coast westward to New Mexico, the departures below the normal varied from .04 to .10; in the remaining districts the deficiences were less marked.

BAROMETRIC RANGES.

The monthly barometric ranges were greatest in New England, where, at Eastport, Maine, and Provincetown, Massachusetts, they exceeded 2.00. They were least in Florida and the southern plateau. North of a line extending from the Pacific coast near San Francisco, eastward to northern Illinois, and thence southeastward to the South Carolina coast, the monthly ranges exceeded 1.00. South of this line they varied from .70 to 1.00, except in Florida and the southern plateau, where they were less.

In the several districts the monthly barometric ranges varied as follows:

New England.—From 1.53 on the summit of Mount Washington, New Hampshire, to 2.04 at Eastport, Maine, and Provincetown, Massachusetts.

Middle Atlantic states.—From 1.23 at Lynchburg, Virginia, to 1.57 at Sandy Hook and Barnegat City, New Jersey.

South Atlantic states.—From .66 at Jacksonville, Florida, to 1.14 at Fort Macon, North Carolina.

Florida peninsula.—From .34 at Key West to .58 at Sanford.

East Gulf states.—From .64 at Pensacola, Florida, to .80 at Vicksburg, Mississippi.

West Gulf states.—From .70 at Galveston, Texas, to .96 at Little Rock, Arkansas.

Rio Grande valley.—From .70 at Brownsville, Texas, to .77 at Rio Grande City, Texas.

Tennessee.—From .82 at Chattanooga to 1.05 at Nashville.

Ohio valley.—From 1.11 at Louisville, Kentucky, to 1.17 at Indianapolis, Indiana.

Lower lake region.—From 1.21 at Rochester, New York, to 1.32 at Erie, Pennsylvania.

Upper lake region.—From 1.06 at Chicago, Illinois, and Milwaukee, Wisconsin, to 1.40 at Port Huron, Michigan.

Extreme northwest.—From 1.38 at Bismarck, Dakota, to 1.54 at Saint Vincent, Minnesota.

Upper Mississippi valley.—From .97 at Keokuk, Iowa, and Springfield, Illinois, to 1.15 at Saint Paul, Minnesota.

Missouri valley.—From 1.07 at Leavenworth, Kansas, to 1.41 at Fort Bennett, Dakota.

Northern slope.—From .87 at Cheyenne, Wyoming, to 1.20 at Fort Shaw, Montana.

Middle slope.—From .81 on the summit of Pike's Peak, Colorado, to .99 at Denver and West Las Animas, Colorado, and Dodge City, Kansas.

Southern slope.—From .52 at Fort Davis, Texas, to .78 at Fort Concho, Texas.

Southern plateau.—From .53 at Fort Grant, Arizona, to .69 at Fort Thomas, Arizona.

Middle plateau.—1.10 at Salt Lake City, Utah.

Northern plateau.—From 1.20 at Boisé City, Idaho, to 1.48 at Lewiston, Idaho.

North Pacific coast region.—From 1.16 at Roseburg, Oregon, to 1.28 at Olympia, Washington Territory.

Middle Pacific coast region.—From .98 at San Francisco, California, to 1.04 at Red Bluff, California.

South Pacific coast region.—From .70 at Los Angeles, California, to .76 at Yuma, Arizona.

AREAS OF HIGH BAROMETER.

The areas of high barometer, traced during the month, were generally observed first north of the boundary line separating the Northwest Territory and the United States, although three of the seven observed approached the stations from the Pacific, where the barometer continued high after the high area had passed to the east of the Rocky mountains. The general course of the movement was easterly, and the most extended of these areas passed to the Atlantic over unusually high latitudes, reaching the coast north of New England.

Number i., approached from the north of Dakota and Montana and was first observed on the night of the 1st. The pressure increased at the stations near the northern boundary of the United States, from Lake Huron westward to Idaho and reached the maximum of 30.7 in Montana, on the morning of the 3d, when the temperature ranged from —10° to —25° in this region. This area extended eastward over the Saint Lawrence valley during the 3d and 4th, causing the temperature to fall to —25° at Rockliffe, Ontario, and to —20° at Father Point, Quebec, at 7 a. m. of the 4th. The course of this area was directly to the east, north of the United States from the point where it was first observed, north of Montana, until it disappeared to the east of the maritime provinces on the 5th.

II.—When the preceding area was passing to the east of the coast line this area appeared north of Montana. The pressure did not equal that attending the first high area until the centre had passed to the northeast of the lake region, but the temperature was lower at extreme northern stations in the northwest while it was not as low in the Saint Lawrence valley, where the pressure exceeded that observed during the transit of number i. As in the case of number i., the course was easterly north of the stations of observation, remaining near the northern limit of the stations about four days, and moving slowly when near the interior of the continent and rapidly as it approached the coast.

III.—This area was also first observed north of Montana, the pressure increasing in the extreme northwest on the 8th, while the barometer was above 30.8 over the maritime provinces. During the 9th, 10th, and 11th the barometer was unusually high in the northern districts of the United States, and on the night of the 10th and morning of the 11th it reached its maximum of 31.0 at stations in the Saskatchewan valley. This was the most marked high area observed during the month, extending from the Atlantic to the Pacific coast, the pressure ranging from .20 to .60 above the normal in all northern districts. The morning report of the 12th indicated a rapid fall in the barometer in the central valleys, although it remained above 30.6 in Manitoba, where the temperature was —27°. The succeeding report showed a rapid decline of pressure in the advance southward of a cold wave which extended over the southern and eastern districts during the 13th and 14th, causing sudden and marked changes in temperature without unusual changes in pressure. On the 13th and 14th a part of this area moved southward to Texas, where the barometer rose to 30.42 on the 14th, attended by a severe "norther" on the west Gulf coast. After the morning of the 14th the course of this secondary high area changed and it moved to the northeast, passing over the Ohio valley, lower lake region, and New England, causing clear, cold weather until it disappeared off the New England coast on the 17th.

IV.—This area appeared north of Montana on the 16th, but apparently moved to the northeast without causing any marked change in the meteorological conditions within the limits of the United States.

V.—During the night of the 18th the barometer rose in the Rocky mountain regions, while an extended barometric trough covered the Mississippi valley. The centre of greatest pressure moved rapidly southward and was in Texas at midnight of the 19th. The cold wave attending this high area extended over all districts east of the Rocky mountains, and very destructive tornadoes occurred in the Southern states when the cold northerly winds met the warm southerly winds from the Gulf of Mexico. After reaching the southern point of its course in Texas this area moved eastward over the Southern states and disappeared with a slight decrease of pressure as it approached the coast.

VI.—The telegraphic reports indicate that this area originated west of the Pacific coast, and that it passed eastward to the Rocky mountain regions on the 21st. The barometer remained about .2 above the normal on the Pacific coast and westward of the Missouri valley, while it increased in the west Gulf states on the 22d. This area disappeared as it approached the Gulf of Mexico, and before it reached the Atlantic coast.

VII.—As in the preceding case this area approached the stations of observation from the Pacific coast. On the 25th

the barometer was above 30.5 on the north Pacific coast, and on the 26th it was 30.71 in northern Montana. The centre of greatest pressure remained north of the United States until midnight of the 27th, but the cold wave and high-pressure attending this area were traced as far south as the Gulf coast. By midnight of the 28th this area had become well-defined in the Missouri valley, but the pressure had declined to 30.47 at the centre. It continued to move southward until the 29th, when it extended over Texas, attended by freezing weather. This area also decreased in energy as it approached the Gulf coast, where it disappeared on the 29th.

AREAS OF LOW BAROMETER.

Fifteen atmospheric depressions have been traced over or near the limits of the United States during the month of February. These depressions generally reached the Atlantic coast in high latitudes, the region of greatest storm-frequency being north of Lake Ontario, over which ten of the depressions passed. The movement of these areas was rapid and the average course to the northeast, north of the mean storm tracks of the month after the depression had moved east of the Mississippi river. All depressions traced west of the Mississippi river inclined to the southeast while passing over the eastern slope of the Rocky mountains. Two depressions disappeared while within the limits of the stations after having been well defined by inclosing isobars.

The following table gives the latitude and longitude in which the several depressions were first and last observed, and the average hourly velocity of each depression:

Areas of low barometer.	First observed.		Last observed.		Average velocity in miles per hour.
	Lat. N.	Long. W.	Lat. N.	Long. W.	
	° ′	° ′	° ′	° ′	
No. I.	37 00	87 00	48 00	59 00	56.0
II.	53 00	107 00	50 00	67 00	47.0
III.	33 00	93 00	49 00	62 00	30.0
IV.	37 30	120 00	40 00	114 00	25.0
V.	37 00	91 00	44 00	61 00	81.0
VI.	34 00	93 00	47 30	70 00	59.0
VII.	43 00	31 00	50 00	68 00	59.0
VIII.	40 00	102 00	41 00	68 00	47.0
IX.	47 00	107 00	49 00	67 00	39.0
X.	46 00	110 00	46 00	72 00	52.0
XI.	52 00	104 00	47 00	61 00	47.0
XII.	40 00	96 00	40 00	85 00	21.0
XIII.	51 00	99 00	46 00	59 00	42.0
XIV	29 00	97 00	48 00	61 00	50.0
XV.	50 00	100 00	40 00	94 00	53.0
Mean hourly velocity					47.4

I.—This disturbance was central in the Mississippi valley on the 31st of January. At 7 a.m. of February 1st it had reached the Atlantic coast, the barometer being lowest near Portland, Maine, where it had fallen to 29.46. The winds increased in force after shifting to the northwest, the maximum velocities at coast stations north of Hatteras, North Carolina, ranging from thirty to fifty miles per hour, the strong winds occurring on the middle Atlantic coast. This storm passed rapidly over Nova Scotia during the night of the 1st, and disappeared to the north of Sidney, where the barometer rose from 29.42 to 29.80 in the eight hours ending at 7 a. m. of the 2d.

II.—This low area possibly passed from the north Pacific, as it was observed in the upper Saskatchewan valley at midnight of January 31st. The first movement was slightly to the south of east. It passed to the north of the stations of observation, and on the morning of the 2d was central immediately north of Georgian bay. The barometer reached the minimum in the upper lake region when the centre was north of Lake Superior. After the course changed to northeast the pressure increased slowly at the centre, the storm passing over the Saint Lawrence valley with decreasing energy during the 2d.

III.—The barometer was below the normal in the west Gulf states from the morning of the 2d until midnight of the 3d, with an apparent westerly movement of this low area. An extended area of high barometer covered the northern portion of the United States, and it was not until this high area had moved to the Saint Lawrence valley that the advance of this depression was noted. On the morning of the 4th the barometer was lowest in Indian Territory, when general rains prevailed in the northeast quadrant of this area. It moved to the northeast during the 4th, with increasing energy. After reaching the upper Mississippi valley the course changed to easterly and it passed over the lake region attended by very heavy rains in the lower lake region, and snow and rain in the upper lake region. The 3 p. m. report of the 5th exhibited two well-marked depressions of 29.5—one near Alpena, Michigan, and the other near Montreal, Quebec—both being inclosed by an isobar of 29.6 extending from northern New England to Michigan. These minor depressions united at the succeeding report and the disturbance passed to the southeast of New England, leaving an extended barometric trough in the Ohio valley and southwest.

IV.—Reports received from the Pacific coast during the 5th, indicate that this depression approached the coast of California from the west. Heavy rains prevailed in California, as far south as San Diego, on the 5th. The area was central in the interior of California on the morning of the 6th, and at the 3 p. m. report of that date, the barometer was lowest, 29.46, near Red Bluff. There was a slow easterly movement until the morning of the 7th, when the depression disappeared in eastern Nevada. Succeeding reports indicate the presence of a slight depression in western Colorado, but the atmospheric movement was slow, and the centre of depression could not be definitely located.

V.—This area developed in the lower Mississippi valley during the night of the 8th, when a cold wave was advancing from the northward over the eastern slope of the Rocky mountains, and warm east to south winds prevailed in the southern states. It was central in northern Arkansas at midnight of the 8th. The rapid advance of the cold air apparently forced this depression to the northeast with unusual velocity, as the centre of disturbance was near Lake Ontario eight hours after it appeared in Arkansas, but a barometric trough extended to the lower Ohio valley. This storm passed directly east over New England during the 9th, without causing marked changes in the atmospheric conditions.

VI.—Preceding the formation of this disturbance in the southwest on the 12th, the barometer was generally low on the Pacific coast and over the middle and southern plateau regions on the 10th and 11th, but the low area on the Pacific coast could not be traced east of the Rocky mountains, the pressure remaining above 30.0 at El Paso, while it was below 30.0 in the Rio Grande valley. The low area central over the middle plateau region at report immediately preceding the development of number vi. disappeared, the pressure increasing .23 in eight hours—from 3 p. m. to 11 p. m. of the 11th. A barometric trough was observed on the morning of the 12th, extending from southern Texas to Illinois, and snow and rain prevailed from Texas and Arkansas northward to Minnesota, the temperature being —27° in Manitoba. The storm-centre reached Lake Huron by midnight of the 12th, attended by brisk winds in the lake region and cold northerly winds as far south as the west Gulf coast. This storm followed the general course of the Saint Lawrence valley, and was last traced as central near Quebec on the afternoon of the 13th.

VII.—This low area probably formed a part of number vi., as it developed in the lower lake region while the former was central in the lower Saint Lawrence valley. The advance of the cold wave from the west increased the energy of the storm, the contrast of temperature in the southeast and southwest quadrants being very marked. At the morning report of the 14th the following observations were reported: Albany, New York, 51°; Toledo, Ohio, 16°; Washington City, 61°; Louisville, Kentucky, 19°; Cairo, Illinois, 15°; Little Rock, Arkansas, 18°. The centre of this storm was near Montreal at 7 a. m. of the 14th, when the barometer had fallen to 29.4, the gradient being greatest to the southwest, and the pressure being 30.4 in Texas. Northwest gales occurred on the middle

Atlantic and New England coasts on the 14th, when this low area had passed to the northeast of New England.

VIII.—During the 18th the barometer was below the normal on the Pacific coast and the reports indicated the advance of a depression over the northern plateau region. These conditions immediately preceded the development of low area number viii. in Colorado on the morning of the 16th. The high area to the north of Colorado apparently forced this storm to the southeast until midnight of the 16th, when it was central in eastern Texas. During the southeasterly movement of this depression stormy weather continued on the Pacific coast, where the barometer continued decidedly below the normal. This storm was inclosed by an isobar of 29.9, including within its area the greater portion of the Mississippi valley, on the morning of the 17th. It moved slowly to the east attended by rain in all districts east of the Mississippi and snow in the northwest. The midnight report of the 17th exhibited two depressions—one on the middle Atlantic coast and one in the Ohio valley. The slight depression in the Ohio valley disappeared on the morning of the 18th, while the one on the middle Atlantic coast increased in energy and moved to the northeast, south of the coast line.

IX.—This disturbance approached from the Pacific, passing over Oregon and Washington Territory to Montana, where it was central at midnight of the 17th. It moved directly east to the upper Mississippi valley, where it was central at midnight of the 18th, forming a barometric trough which extended from Lake Superior to northern Texas. Warm east to south winds prevailed over the Southern states and Ohio valley, and cold north winds in the Missouri valley and on the eastern Rocky mountain slope. This barometric trough moved slowly eastward during the 19th, the centre of the depression passing to northern Illinois and Indiana at the morning and afternoon reports, respectively, and thence to the north near Alpena, Mich., at the midnight report. Violent gales occurred in the lake region, and the temperature fell 30° in eight hours in the central valleys, and destructive tornadoes occurred in the east Gulf and south Atlantic states on the afternoon and evening of the 19th. This was the most marked disturbance of the mouth. The barometer fell below 29.3 when the storm passed over the Saint Lawrence valley and New England and gales occurred on the Atlantic coast from Florida to Maine. The maximum velocities were: 60 miles, w., at Sandy Hook; 50, se., at Bird Rock; 49, w., at Provincetown; 52, sw., at Kitty Hawk.

X.—This disturbance also approached the stations from the north Pacific coast, where heavy rain occurred on the 19th sixteen hours previous to the appearance of this storm in Montana. The centre followed the general course of the Missouri valley, forming an extended trough of low pressure from the upper lake region to Indian Territory. The storm track crossed the Missouri river near Yankton, Dakota, and passed directly east to northern Illinois and thence over the lake region to the Saint Lawrence valley. This storm attained its greatest energy when central over the upper lake region, the winds at Milwaukee and Grand Haven reaching a maximum velocity of forty-two miles per hour.

XI.—The 3 p. m. report of the 21st indicated the advance of a low area from the region north of Montana, where the barometer had fallen rapidly during the day. The succeeding reports showed the advance of a low area north of Dakota and Minnesota during the 22d, the disturbance moving slightly to the south, causing high winds in the lake region. At midnight of the 22d this low area was north of Kingston and west of Quebec, the barometer being low to the southward and high in the west Gulf states. A secondary depression which has been traced as a continuation of number xi. developed on the middle Atlantic coast during the night of the 22d and this followed the coast line to the northeast. Strong gales attended the northeast movement of this secondary depression, the maximum velocities occurring after the winds shifted to the northwest. The following high velocities were reported: Sandy Hook and Cape Henry, 60 miles; Kitty Hawk, 56; Delaware Breakwater, 52; Eastport, 40; Boston, 34.

XII.—This was a slight but well-defined depression which was first observed in the lower Missouri valley on the afternoon of the 23d. It passed directly east until the afternoon of the 24th, reaching the Ohio valley, when it disappeared by a gradual rise of pressure over that region, which was probably due to the advance of a decided low area at that time central north of Dakota.

XIII.—The 3 p. m. report of the 24th showed a well-defined depression north of Minnesota, where the barometer had fallen more than .40 in eight hours, with high south to west winds in the extreme northwest and a rapid gradient to the south of the centre of disturbance. This storm moved to the southeast until it reached northern Michigan, but the pressure increased from 29.35 to 29.77 during the southeasterly movement. In passing over the lake region it lost much of its energy and after reaching the Saint Lawrence valley a secondary depression developed on the coast of Nova Scotia. This last depression increased in energy and caused violent gales off the northeast coast during the 27th and 28th.

XIV.—This storm developed in southern Texas on the 27th, immediately to the south of a cold wave which extended from the west Gulf states to British America. It was apparently forced to the eastward by the cold northerly winds, and at midnight of the 27th, three centres enclosed by isobars of 29.6 were observed in the barometric trough which extended from Lake Ontario to Florida. Warm southerly winds continued at stations on the Atlantic coast, while freezing weather with snow and sleet extended as far south as Tennessee. The 7 a. m. report of the 28th, exhibited a well-defined depression central on the middle Atlantic coast attended by severe gales. After the winds shifted to northwesterly on the North Carolina coast on this date, the wind reached a maximum velocity of sixty-four miles at Fort Macon, North Carolina, and marine reports from s. s. "D. J. Foley," in latitude N. 35° 51′, longitude W. 75° 05′, show that strong wnw. gales prevailed, the wind blowing with hurricane force for fifteen minutes at about 2.30 p. m. This storm increased in energy as moved northeastward, the barometer falling to 28.6 at Yarmouth and 28.42 at Anticosti.

XV.—This low area was observed north of Dakota on the morning of the 29th. It moved almost directly south during the day, and at midnight it was well-defined and central in the lower Missouri valley, enclosed by an isobar of 29.6, almost circular in form, the barometer at the centre reading 29.56.

NORTH ATLANTIC STORMS DURING FEBRUARY, 1884.

[*Pressure expressed in inches and in millimetres; wind-force by scale of* 0—10.]

Chart ii. exhibits the tracks of the more important atmospheric depressions that have appeared over the north Atlantic ocean during February, 1884. The location of the various storm-centres has been approximately determined from reports of observations furnished by agents and captains of ocean steamships and sailing vessels, and from other miscellaneous data received at this office up to March 22, 1884.

The observations used are in general simultaneous, being taken each day at 7 a. m. Washington, or 12h. 8m. p. m. Greenwich, mean time.

Of the ten depressions charted six are continuations of disturbances which passed over, or near, the United States and Canada; and of those six, three have been traced eastward to the European coasts. Four depressions were first observed to the eastward of the fortieth meridian, one of these was a continuation of a storm shown on the chart for January. Fresh to strong southwesterly to northwesterly gales prevailed over the Atlantic throughout the month of February.

The following are brief descriptions of the depressions charted:

I.—This was a continuation of depression number xii. of the January chart. At the close of that month the disturbance was central to the southwestward of Ireland, and by February 1st it had reached the Channel. It then passed northeastward over England and the North sea. During its passage it caused